# PERFORMANCE REPORT

**STATE:** Alaska–Region III **STUDY NO.:** 2.0

**GRANT:** W-28-1 and W-28-2

**TITLE:** Alaska Wildlife Habitat Enhancement

**AUTHOR:** Dale Haggstrom

**PERIOD:** 1 July 1998–15 November 1999

## OBJECTIVES

1 Landscape Scale Prescribed Fire. Restore habitat diversity and productivity levels in areas with a history of successful fire suppression efforts and/or enhance habitat diversity and productivity levels in areas where people can benefit from increased abundance of key wildlife species such as moose and bison.

2 Postlogging Site Treatment. Increase browse supplies for moose and give state fire managers experience and confidence in the conduct of prescribed fires while testing postlogging treatments that may benefit wildlife.

3 Ruffed Grouse Habitat Enhancement. Optimize habitat conditions for ruffed grouse by creating different-age aspen stands near one another so that quality food and cover are available to grouse within their small foraging ranges.

4 Moose Habitat Enhancement. Crush or shear willow, aspen, and birch to stimulate vegetative sprouting and increase the availability of high-quality browse for moose.

5 Prescribed Burning Protocol. Establish a prescribed burning protocol between the ADF&G - Division of Wildlife Conservation (DWC) and the Alaska Department of Natural Resources - Division of Forestry (DOF) that will meet U.S. Fish and Wildlife Service (FWS) guidelines for Categorical Exclusion in the National Environmental Policy Act (NEPA) process. The prescribed burning protocol will document that state plans and procedures adequately address environmental issues in the NEPA process.

## ACTIVITIES PLANNED

1 Landscape Scale Prescribed Fire. Complete the planned Western Tanana Flats (GMU 20A), East Fork of the Dennison Fork of the Fortymile River (GMU 20E), and Natohona Creek (GMU 12) prescribed fires when burning conditions meet prescription. Evaluate additional sites for landscape-scale prescribed fires in DWC Region III and prepare additional prescribed burn plans as needed.

2 Postlogging Site Treatment. Conduct one or more broadcast burns of logging slash in the Standard Creek project area (GMU 20B) near Fairbanks during late summer 1998. Prepare prescribed burn plans to continue the program in additional timber sale units during late summer 1999. Mechanically scarify approximately 200 acres of logged timber harvest units at the Standard Creek project area during fall 1998. Cut and store enough feltleaf willows during winter 1998–99 to plant at least 10 acres of white spruce clearcuts at the Standard Creek project area during early summer 1999. Continue to monitor and evaluate the 1996 burn in timber sale unit NC-1085 and the 1996–97 willow planting sites.

3 Ruffed Grouse Habitat Enhancement. Fell a total of 125 acres of mature aspen at the Nenana Ridge and Two River project areas (GMU 20B) during fall 1998. Lay out additional units totaling about 100 acres for felling during fall 1999 in these project areas and possibly Cache Creek. Evaluate use of a shear blade-equipped bulldozer to fell relatively young aspen in the 41-year-old burn in Cache Creek.

Lay out 1 or more prescribed burn units in standing mature aspen for burning during spring 1999. Consider prescribed burning of approximately 10 acres of felled aspen.

Construct approximately 2 miles of new forest road to access additional aspen units for felling or burning at the Nenana Ridge project area.

Install signs to denote the project area and recognize contributors.

Develop and implement a sampling regime to monitor and evaluate the effects of aspen felling and burning.

4 Moose Habitat Enhancement. Continue to monitor vegetative response to past mechanical crushing or shear blading activities at the Goldstream Public Use Area (GMU 20B), Heritage Forest Education and Recreation Site (GMU 20B), and Tok River (GMU 12) project areas.

5 Prescribed Burning Protocol. Work with DOF fire management staff to finalize the draft prescribed burning protocol prepared by DWC.

**ACTIVITIES ACCOMPLISHED**

Habitat enhancement activities involving approximately 90,000 acres were completed at 23 sites in Interior Alaska (Fig 1) during the reporting period (Table 1).

Dale Haggstrom became project leader for the Region III habitat enhancement project on 16 December 1998. Tom Paragi was hired 16 August 1999 to help conduct and evaluate project activities.

Landscape Scale Prescribed Fire

Three landscape scale prescribed fires were successfully completed during the reporting period. The largest of these was the 52,000-acre East Fork Burn (Kraemer and Haggstrom 1998) along the East Fork of the Dennison Fork of the Fortymile River. This prescribed fire was ignited 21 July 1998 on state land about 45 miles north of Tok at a cost of $13,452 ($0.26/acre). Staff

from DOF, FWS - Tetlin National Wildlife Refuge, Alaska Department of Public Safety - Division of Fish and Wildlife Protection, and DWC participated. A year later (20 July 1999), permanent photo points and vegetation sampling transects were established at several sites in the burn by DWC and DOF staff from Tok.

During winter 1998–1999, DWC and DOF, with assistance from the Bureau of Land Management (BLM), Tanana Chiefs Conference, Doyon Limited, Bureau of Indian Affairs, ADNR - Division of Land, and ADNR - Office of History and Archeology, prepared the Mosquito Flats and Kechumstuk Creek Burn Plan (Kraemer et al. 1999) for a 798,553-acre area about 35 miles north of Tok. Two of three prescribed fires identified in the plan were completed during summer 1999. These were a 6760-acre burn ignited 12–13 May on Mosquito Flats and a 30,781-acre burn ignited on 3 August in Kechumstuk Creek. Both burns are on BLM land along the Mosquito Fork of the Fortymile River. Staff from DOF, Tetlin National Wildlife Refuge, and DWC ignited the two burns at a cost of $17,056 ($0.45/acre). An additional $12,130 was spent on 8–10 June to contain a holdover fire from the Mosquito Flats prescribed burn.

The Western Tanana Flats Prescribed Burn Plan (Haggstrom and Kurth 1999) was amended 14 June 1999 to increase the range of acceptable weather conditions for ignition after discussing smoke dispersal modeling with the Alaska Volcano Observatory, which uses modeling to predict ash dispersal after a volcanic eruption (Searcy et al. 1998). An amendment to add a portion of the Fort Wainwright military reservation to the Maximum Allowable Perimeter was discussed with the BLM and US Army but was not approved. The 25,000-acre prescribed burn scheduled for the Western Tanana Flats, Core Area 1, was not completed during summer 1999. DWC and TCC staff met to discuss procurement of BIA funds to plan and conduct preburn protective measures for Native allotments adjacent to the planned prescribed burn prior to summer 2000.

## POSTLOGGING SITE TREATMENT

### *PRESCRIBED FIRE*

A prescribed burn plan was prepared for 185 acres of logging slash in timber sale units NC-894-F, NC-1092-F and NC-902-F in the Standard Creek logging area near Fairbanks (Patten, Haggstrom, and Schmoll 1999). A bulldozer was used to prepare mineral soil fuel breaks, and fuel moisture samples were periodically collected. However, none of the burns were completed because of poor burn conditions when firefighting resources were available to do the work. These units had originally been slated for burning in summer 1998. The abundance of grass that established over the two summers since logging had slowed drying of slash fuels between periods of rain, further limiting burn opportunities.

### *SCARIFICATION*

Blade scarification to prepare sites for seed establishment was completed on approximately 70 acres of logged timber sale units in the Mosquito Creek area about 43 miles southeast of Fairbanks near Birch Lake. The contracted dozer work was done during September 1998 at a cost of $5,000 (ca. $71/acre).

### *WILLOW PLANTING*

No willows were planted during summer 1999. This activity was contingent on completion of one of the planned prescribed burns in the Standard Creek logging area to prepare a site for planting. Feltleaf willow that had been cut and stored in March to continue the experimental planting effort had to be discarded. Approximately $731 in unrecoverable costs were charged against this activity.

## RUFFED GROUSE HABITAT ENHANCEMENT

### *MECHANICAL FELLING*

Mature aspen was felled on 18 treatment units totaling 221 acres during the reporting period. Fourteen of the units (179 acres) are located at the Nenana Ridge project area and 4 (42 acres) are located at the Two Rivers project area. Felling contracts for $18,125 and $30,140 were awarded to T.J.'s Land Clearing Inc. and Nip and Tuk Logging, respectively. Felling costs averaged $218 per acre.

### *PRESCRIBED BURNING*

The prescribed burn plan for the Nenana Ridge Ruffed Grouse Project was revised (Patten, Haggstrom, and Kurth 1999) and 2 aspen units were prepared for burning during spring 1999. One unit (29.6 acres) was successfully burned on 18 May 1999 by fire staff from DOF - Fairbanks Area and BLM - Alaska Fire Service (AFS). Costs paid so far total $9,231 ($312/acre). Leaf-out raised the relative humidity in the forest understory above the desired level for ignition before fire staff were able to burn the other unit (26.1 acres). Ignition of this unit has been rescheduled for spring 2000.

The four May 1998 burn units at the Nenana Ridge project area were sampled during September 1999 after two growing seasons to determine how effective burning was in top-killing the mature aspen and releasing a suckering response. Preliminary analysis revealed nearly 94,300 stems (suckers) per acre (233,000 stems/ha) on the site with the greatest top-kill. Vegetative regeneration of aspen in most of the burned areas exceeded our planned minimum objective of 12,140 stems/acre (30,000 stems/ha).

### *ACCESS IMPROVEMENT*

North Pole Wood Products extended the Upper Road at the Nenana Ridge project area westward approximately 2.5 miles during early November 1999 at a cost of $5,700 ($2,280/mi). A one-lane forest road was constructed with a 12-ft minimum driving surface.

### *SIGNS*

A large wooden sign recognizing contributions from DWC, DOF, The Ruffed Grouse Society (RGS), and the Olin Corporation - Winchester Division was installed at the intersection of the Upper Road with the Nenana Ridge Road at the Nenana Ridge project area on 9 October 1998. State Senator Bert Sharp, local representatives of The Wildlife Society, and DWC and DOF staff were present for the sign dedication ceremony. Smaller, laminated paper signs were posted at the

Nenana Ridge, Two Rivers, and Standard Creek project areas during 1999. Materials for signs cost approximately $1850.

*MISCELLANEOUS*

Ruffed Grouse Society biologist Dan Dessecker toured the Nenana Ridge project area during May 1999 to evaluate progress on ruffed grouse habitat enhancement activities being jointly conducted and funded by RGS, DOF, and DWC.

Dale Haggstrom gave a slide presentation on burning standing aspen for ruffed grouse habitat enhancement at the Interagency Fire Effects Monitoring Workshop at the AFS, Fort Wainwright, on 3 June 1999. Slide presentations on Region III habitat enhancement activities were also made at the Chena Kiwanis Club and DOL - Northern Region on 3 August 1998 and 13 January 1999, respectively.

## MOOSE HABITAT ENHANCEMENT

*GOLDSTREAM PUBLIC USE AREA*

Dale Haggstrom helped Dr. Terry Bowyer and students from the University of Alaska Fairbanks sample willows in and adjacent to the Goldstream Creek project area on 23 February 1999. The students then compared willow browse availability and use by moose in a portion of the area treated (crushed) in March 1996 and a similar, but untreated, area nearby. Results will be available at a later date (Bowyer in prep).

*HERITAGE FOREST EDUCATION AND RECREATION SITE*

We revisited the March 1997 treatment units in late summer 1999. Production of new shoots seemed adequate among the shear-bladed aspen, birch, and willow. The new growth has received moderately high browsing by moose.

*TOK RIVER*

We revisited the March 1998 treatment units in late summer 1999. Crushed willows have produced a vigorous growth of new stems that are receiving moderately high browsing by moose.

Division of Wildlife Conservation and Division of Forestry staff examined potential timber harvest units in the proposed Tok River moose habitat timber sale (NC-837-T) to discuss harvest strategies and postlogging site treatments that might benefit wildlife. Division of Wildlife Conservation staff also reviewed the draft Forest Land Use Plan for this sale. As proposed, the sale will consist of 51 units comprising approximately 880 acres.

## PRESCRIBED BURNING PROTOCOL

The DOF - Fairbanks Area fire staff began compiling documentation of the state's prescribed fire policies and procedures during 1999 and, as new prescribed fire plans were prepared, DWC and DOF staff continued to extend and improve the sections that address various social and environmental concerns.

## LITERATURE CITED

HAGGSTROM, DA, AND T KURTH. 1999. Western Tanana Flats prescribed burn plan. Unpublished document. Alaska Dep Fish and Game/Alaska Dep Natural Resources, Fairbanks. 7 Aug 1996 (Amended 14 June 1999). 53 pp.

KRAEMER, R, D GRANGAARD, AND DA HAGGSTROM. 1999. Mosquito Flats and Kechumstuk Creek prescribed burn plan. Unpublished document. Alaska Dep Fish and Game/Alaska Dep Natural Resources, Fairbanks. 3 May 1999 (Amended 24 June 1999). 45 pp.

KRAEMER, R, AND DA HAGGSTROM. 1998. Prescribed burn plan for the East Fork of the Dennison Fork of the Fortymile River. Unpublished document. Alaska Dep Fish and Game/Alaska Dep Natural Resources, Fairbanks. 1 Jun 1998. 29 pp.

PATTEN, S, DA HAGGSTROM, AND T KURTH. 1999. Prescribed burn plan for the Nenana Ridge ruffed grouse project. Unpublished document. Alaska Dep Fish and Game/Alaska Dep Natural Resources, Fairbanks. 23 Apr 1998 (Revised 14 May 1999). 20 pp.

PATTEN, S, DA HAGGSTROM, AND R SCHMOLL. 1999. Prescribed burn plan for timber sale NC-894-F, NC-1092-F and NC-902-F. Unpublished document. Alaska Dep Fish and Game/Alaska Dep Natural Resources, Fairbanks. 14 July 1999. 25 pp.

SEARCY, C, K DEAN, AND W STRINGER. 1997. PUFF: A high-resolution volcanic ash tracking model. Journal of Volcanology and Geothermal Research. 80, 1–16.

## SEGMENT PERIOD PROJECT COSTS

| | Personnel | Operating | Total |
|---|---|---|---|
| Planned (2-yrs) | 71.4 | 179.0 | 250.4 |
| Actual (7/1/98–11/15/99) | 43.7 | 66.6 | 110.3 |
| Difference | 27.7 | 112.4 | 140.1 |

*Explanation:* Planned personnel costs were based on 2 biologists' working part-time on this project during FY99. However, one position was vacant during that period, so actual FY99 personnel costs were less than planned. Personnel costs for FY00 are not being paid from Federal Aid in Wildlife Restoration Act funds.

Operating costs were planned for activities spanning a 2-year period, 1 July 1998 through 30 June 2000, to provide some scheduling flexibility in the Reimbursable Services Agreements with DOF because it is difficult to predict when suitable conditions for prescribed burning may occur. Actual operating costs are less than planned because several of the scheduled activities are still pending.

## SUBMITTED BY:

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Table 1 Summary of project accomplishments, 1 July 1998–15 November 1999

| Treatment | Number Sites | Total Acres |
|---|---|---|
| Landscape-Scale Prescribed Fire | 3 | 89,541 |
| Postlogging Site Treatment | | |
| • Prescribed Fire | 0 | 0 |
| • Scarification | 1 | 70 |
| • Willow Planting | 0 | 0 |
| Ruffed Grouse Habitat Enhancement | | |
| • Felling | 18 | 221 |
| • Prescribed Fire | 1 | 30 |
| Moose Habitat Enhancement | | |
| • Willow Crushing | 0 | 0 |
| | 23 | 89,862 |